



YOUTH ACTIVITIES FOR THE CLASSROOM & BEYOND: **SCIENCE**

-MIDDLE/HIGH SCHOOL (7-8TH & 9-12TH GRADE)-

Activities (7-12th):

EFFECTS OF ATOD ON THE HUMAN BODY

Examine the effects of alcohol, tobacco, and other drugs on the body. Draw a picture of the brain, indicating which areas control various parts of the body. Note which parts of the brain alcohol affects first, and how it impairs vision and reaction time.

Here are DVDs/Toolkits that can be checked out from the [ND Prevention Resource & Media Center \(PRMC\)](http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/dvd-catalog.pdf)

- **DVD** - 'This is your Brain on Alcohol' (page 7) - <http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/dvd-catalog.pdf>
- **DVD** - 'Alcohol & Drug – Body & Mind' (page 2) - <http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/dvd-catalog.pdf>
- **Toolkit** - 'Drugs and the Developing Brain' (page 4) - <http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/games-kits-display-catalog.pdf>

***Variation:** Have the students discuss how alcohol, tobacco, and other drugs affects production and formation of proteins and DNA. For a variety of science related stories, visit Science Daily at <http://www.sciencedaily.com/>.

***Variation:** Have the students discuss Fetal Alcohol Syndrome/Fetal Alcohol Effects.

Check out 'Fetal Alcohol Syndrome' babies from the ND Prevention Resource & Media Center (PRMC).

- These non-electronic manikins are based on actual Fetal Alcohol Syndrome infants. It represents only some of alcohol's many devastating effects on a developing fetus – (page 12) <http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/games-kits-display-catalog.pdf>
- **DVD** – 'Understanding Fetal Alcohol Syndrome' (page 8)- <http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/dvd-catalog.pdf>
- **DVD** – 'No Safe Amount: Women, Alcohol and FAS' – (page 8) - <http://www.nd.gov/dhs/services/mentalhealth/prevention/pdf/dvd-catalog.pdf>

WHAT IS A DRUG?

Have your students research what the criteria are through the *Food, Drug, and Cosmetic Act* for something to be considered a drug. <http://www.merriam-webster.com/dictionary/drug>

Answer: According to the Food, Drug, and Cosmetic Act –

- A substance recognized in an official pharmacopoeia or formulary
- A substance intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease
- A substance other than food intended to affect the structure or function of the body
- A substance intended for use as a component of a medicine but not a device or a component, part, or accessory of a device

DEBATE TOPICS

Note: Always have an anti-drug take home message from the debate and only conduct those that you feel comfortable leading.

- Would you immunize your kids from becoming addicted to a drug, such as alcohol? (Immunization would block all affects of alcohol.)
 - Should an alcohol be allowed to receive a liver transplant?
 - What are the reasons for the drinking age being at 21?
 - What are the reasons for marijuana remaining illegal?
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*NATURAL HIGH

Prerequisite: Review of the anatomy and physiology of the central nervous system

Students research the effects of alcohol, tobacco, and other drugs on the various functions of the central nervous system with particular emphasis on naturally occurring substances such as ENDORPHINS. Students create a video or presentation entitled “100 Ways to Feel Great without Using Alcohol, Tobacco, or Other Drugs” and develop posters, banners, or bumper stickers to support a theme. (*Hint:* Use the [“Live your NO”](#) theme!)

Variation: Students investigate the effects of exercise on the brain and emotions.

Variation: In small groups, students simulate the movement of neurotransmitters across the synapse. Each student portrays a different aspect of the process. Students develop diagrams, models, or computer graphics to illustrate the working of the human brain and the effects of various substances on human behavior. How do alcohol, tobacco, and other drugs affect this process? Students can be creative and create a human model of the process. While the students are demonstrating how it works, assign other students as “toxins” (i.e., alcohol, tobacco, other drugs) and have them “interrupt” the process (e.g., redirect/slow down/deplete).

*cross-curriculum 

Keys to prevention at Middle School age (7-8th grade):

When attempting to intervene positively in the lives of middle school youth, help them gain control of situations and not be controlled by them, it is important to remember what motivates them.

- They are often controlled by the moment, acting first and thinking about it later. What feels good at the moment can easily dictate the choices they will make.
- They are keenly interested in their bodies and appearance, in how to become stronger or more attractive. This interest can provide a natural opening to teach them about the health hazards of alcohol, tobacco and other drugs.
- They are big risk takers, quick to test limits, break rules and even flirt with death. They enjoy danger and often believe they are invincible.
- They can think abstractly and are sufficiently aware of their own future to see the benefits of education and how their behavior can have long-term consequences.
- They are beginning to see shades of gray and recognize that complex moral issues cannot always be defined in black and white. They are influenced more by their own ability to make moral judgments than by the opinions of those who have the power and authority to tell them what to believe and how to behave.
- They are involved in their friendships. It is through friendships that they explore the world, test out ways of being and behaving, and acquire a sense of both belonging and identity. It is critical that parents, teachers and other adults help them learn how to develop healthy, positive friendships and reject friendships that are unhealthy.
- They want to grow up, but they don't always know how to do it successfully. They definitely need adults in their lives to answer their questions, help with their problems, and generally serve as models of healthy, responsible, mature behavior.

Evidence Based Prevention Strategies: *Correcting Misperceptions of Norms, Increasing Perception of Personal Risk, Life Skills Training, and Connecting to Community Prevention Efforts.*

- Correct the students' misperceptions of norms (exaggerations of use of alcohol tobacco and other drugs). For example, the assumption that "everyone is doing it"
- Build social skills stressing individuation/resisting peer pressure.
- Raise awareness of the dangers of substance abuse and the benefits of positive behavior.
- Emphasize norms that promote healthy lifestyles.
- Make students aware of the influence of advertising on people's use of these substances.

High School age (9-12th grade):

Drug prevention messages must have a foundation of accurate, factual information from which youth can draw conclusions about the dangers and long-term effects of drug-use. Still, there are certain things educators should keep in mind when communicating with high school students about substance abuse.

- They need to continue learning and practicing how to resist peer pressure and to understand the valid reasons for saying "no" to risky behaviors.

- They need to be allowed to make independent decisions and to assume responsibility for choices that affect them and others.
- They need to see that, as citizens, they are responsible for making their communities better, safer places to live.
- They like to explore different sides of issues, examine various interpretations and justify their actions as correct moral choices.

Evidence Based Prevention Strategies: *Correcting Misperceptions of Norms, Increasing Perception of Personal Risk, Promoting Pro-Social Norms, and Connecting to Community Prevention Efforts.*

SOURCES: Real Life Issues Curriculum Infusion, *Network for Dissemination of Curriculum Infusion at Northern Illinois University*; American Council for Drug Education (ACDE)

